

इंटरनेट

मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8905 (1987): Rock Pitons for Mountaineering [PGD 27: Mountaineering Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard

SPECIFICATION FOR  
ROCK PITONS FOR MOUNTAINEERING

( First Revision )

**1. Scope** — Covers the requirements for rock pitons for mountaineering.

**2. Application** — Rock piton is a piece of metal designed to be hammered into a check in the rock face and to be used as a means of static belay, running belay or as an artificial aid. The piton consists of a spike or blade and a head, having a hole or having a loosely welded ring of such dimensions as to allow the passage of one or two carabiners (see IS : 8533-1977 Specification for general purpose carabiners for mountaineering). The loads that may be applied to various types of pitons depend on their design and the angle between the body of pitch and rope belay.

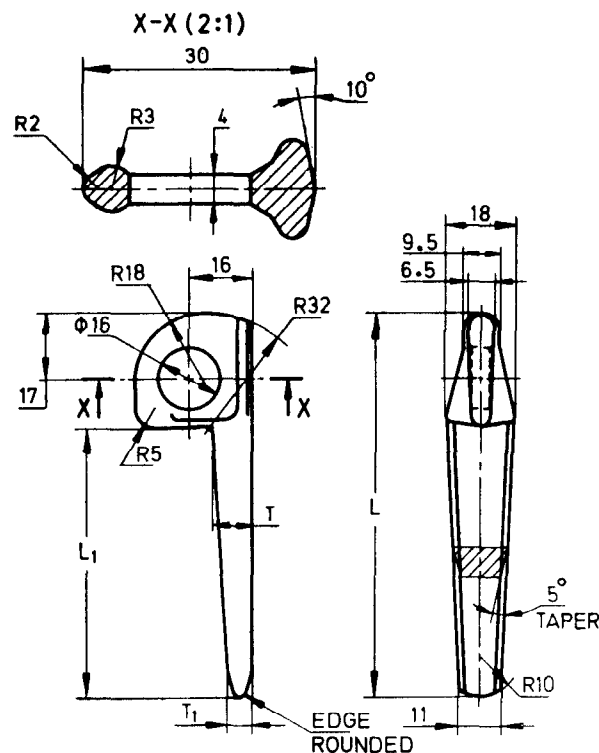
**3. Terminology** — For the purpose of this standard, the following definitions shall apply.

**3.1 Piton, Horizontal** — Piton in which the direction of load on the eye is a right angles to the working edge of the piton.

**3.2 Piton, Vertical** — Piton in which the direction of the load on the eye is parallel to the working edge of the piton.

#### 4. Shape and Dimensions

##### 4.1 Rock Piton, Horizontal (Lost Arrow) (Type A)



Adopted 8 October 1987

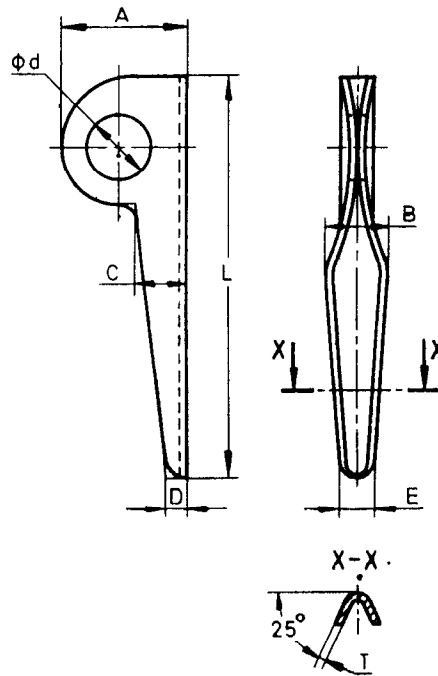
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Gr 4

All dimensions in millimetres.

Nominal Size	<i>L</i>	<i>L</i> <sub>1</sub>	<i>T</i>	<i>T</i> <sub>1</sub>
1	100	70	10	5
2	80	50	5	2
3	110	80	5	2
4	85	55	6.5	3
5	115	85	6.5	3
6	90	60	8	2
7	120	90	8	2
8	140	110	8	2

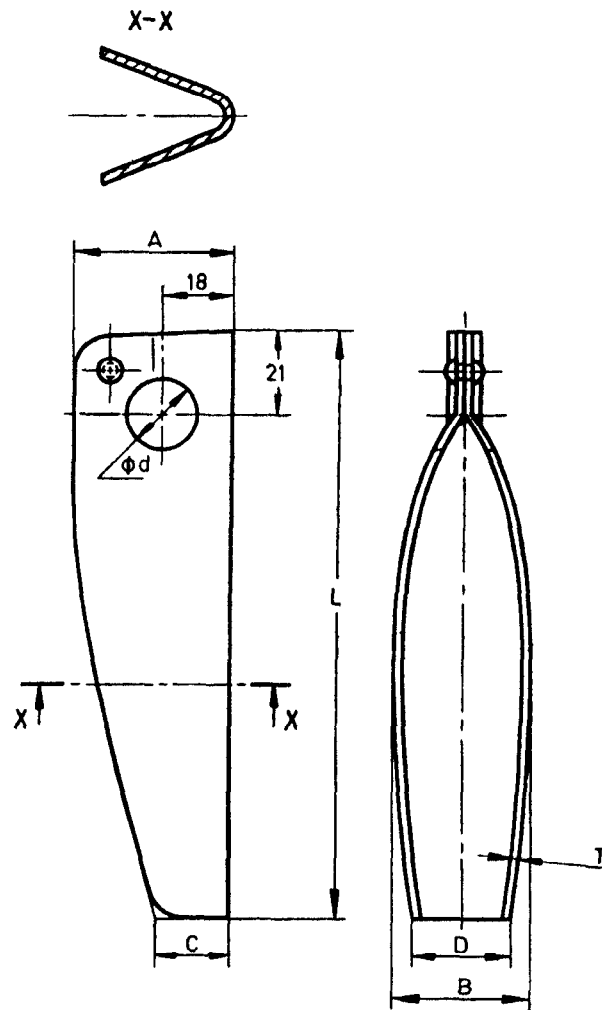
4.2 Rock Piton, Horizontal (Angle Piton) (Type B)



All dimensions in millimetres.

Nominal Size	<i>L</i>	<i>d</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>T</i>
1	105	17	33	12.5	13	5.5	9	1.8
2	105	17	33	16	13	5.5	9	1.8
3	145	17	35	20	16.5	6.3	9	2.24
4	145	17	40	25	25	12	14	2.5

4.3 Rock Piton, Horizontal (Angle Piton) (Type C)

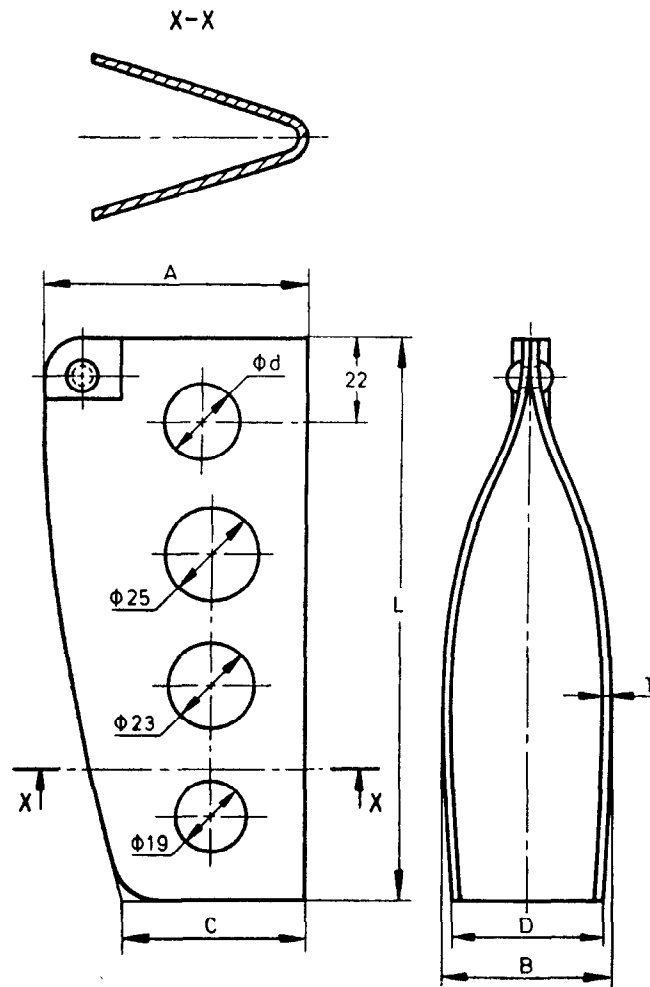


All dimensions in millimetres.

Nominal Size	<i>L</i>	<i>d</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>T</i>
1	150	18	40	35	20	25	2
2	150	18	55	38	30	30	2

**IS : 8905 - 1987**

**4.4 Rock Piton, Horizontal (Bongs) (Type D)**

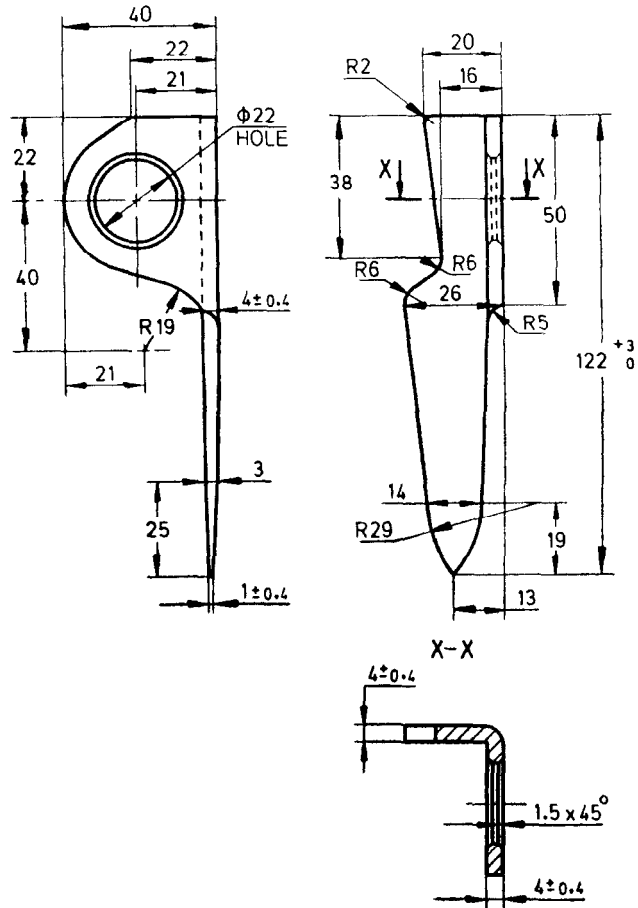


All dimensions in millimetres.

Nominal Size	$L$	$d$	$A$	$B$	$C$	$D$	$T$
1	150	20	55	40	30	30	2
2	150	20	70	45	45	40	2

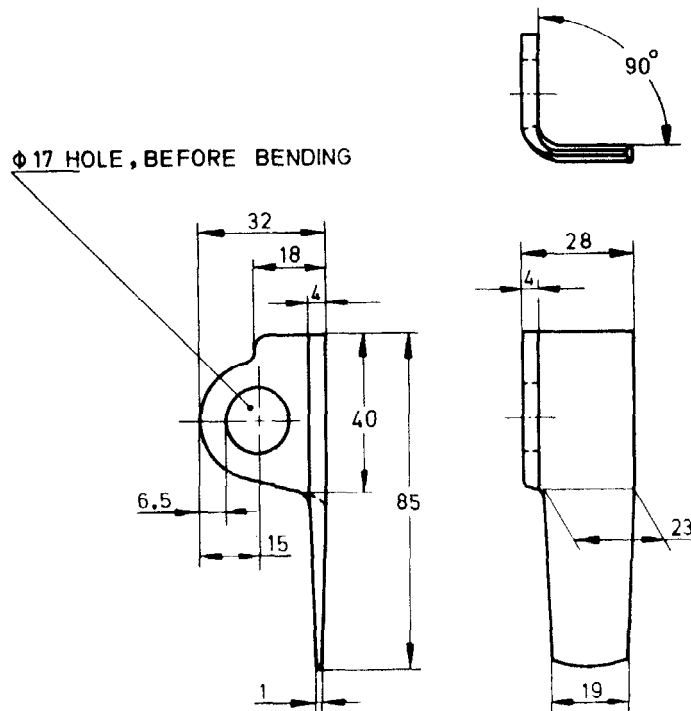
4.5 Rock Piton, Horizontal (Type E)

All dimensions in millimetres.



4.6 Rock Piton, Horizontal (Rurp Piton) (Type F)

All dimensions in millimetres.

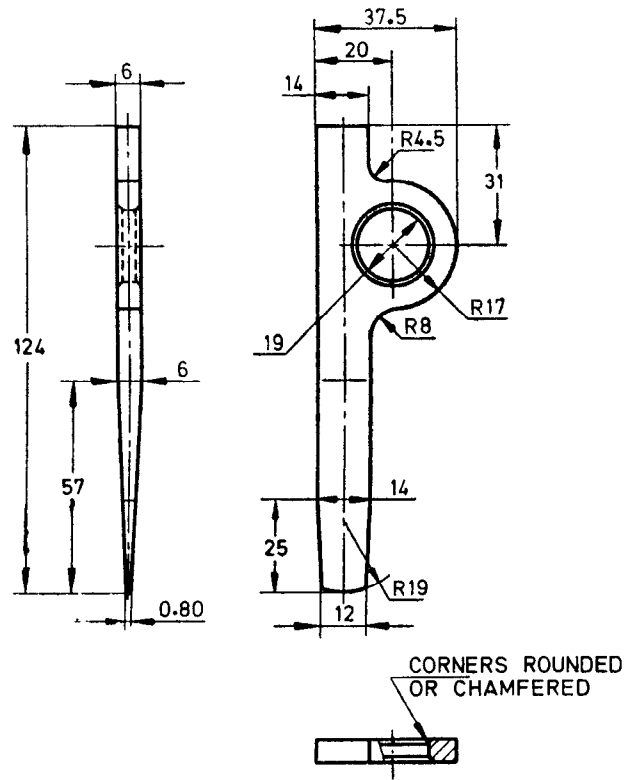




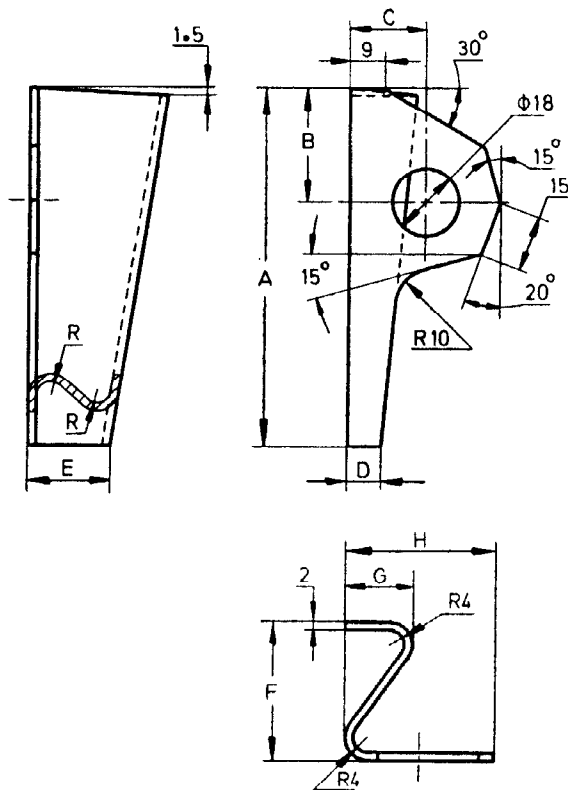
**IS : 8905 - 1987**

**4.7 Rock Piton, Vertical (Type G)**

All dimensions in millimetres.



**4.8 Rock Piton, Universal (Leeper Z-Cross Piton) (Type H)**

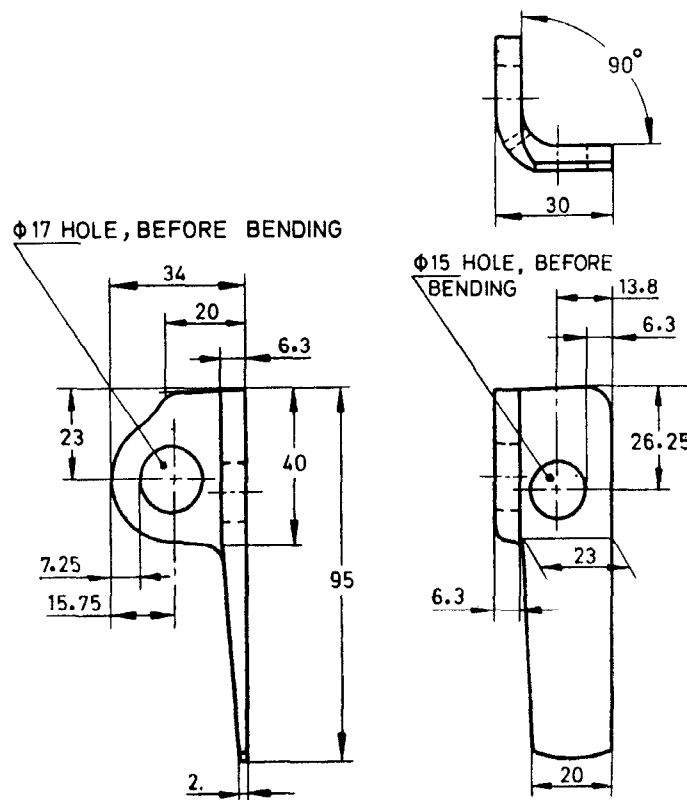


All dimensions in millimetres.

Nominal Size	A	B	C	D	E	F	G	H	R
1	90	30	20	6.5	20	35	15	37	4
2	95	30	20	9	22	37	13	40	4
3	115	30	20	5	17	33	12	37	4
4	140	30	20	9	22	40	18	40	4

**4.9 Rock Piton, Universal (Rurp Piton) (Type J)**

All dimensions in millimetres.



**Note**— The shapes and sizes of the rock pitons greatly depend on their application. Only the dimensions for the generally used types of pitons have been given in 4.1 to 4.9.

**4.10** The tolerances on the dimensions shall be in accordance with the best prevalent manufacturing practices.

**5. Material**

**5.1** Steel having following composition of material shall be used for the manufacture of rock pitons:

Carbon	0.35 to 0.45
Silicon	0.1 to 0.35
Manganese	0.4 to 0.7
Nickel	1.2 to 1.6
Chromium	0.9 to 1.3
Molybdenum	0.1 to 0.2

**6. Hardness** — Rock pitons made of steel shall have a hardness of 350 to 450 *HV*.

**7. Designation** — A rock piton shall be designated by commonly used name, size ( in case of more than one size ) and the IS number.

*Example:*

A rock piton of Type A and nominal size 1 shall be designated as:  
Rock Piton A × 1 IS : 8905

## **8. Manufacture, Workmanship and Finish**

**8.1** The piton blank shall be cut and formed so that the grain of the metal is parallel to the longitudinal axis of the shank.

**8.2** Pitons shall be finished smooth and shall be free from burrs, cracks and other defects. The holes shall be finished smooth to avoid scraping. The rock pitons shall be given suitable anticorrosive treatment.

## **9. Tests**

**9.1 Strength of Piton** — A load of 13.5 kN shall be applied to the piton edge at right angles to the gripping surfaces for a period of 5 minutes. The pull shall be applied gradually. On completion of the test, the piton shall not show any sign of fracture or permanent deformation.

**9.2 Crack Test** — Each piton shall be subjected to crack detection test after hardening and prior to anti-corrosive treatment.

**10. Marking** — Rock pitons shall be suitably embossed or marked with acid etching with the manufacturer's name or trade-mark.

**10.1 Certification Marking** — Details available with the Bureau of Indian Standards.

## **E X P L A N A T O R Y   N O T E**

This standard lays down the requirements of various types of rock pitons used in mountaineering. This standard was first published in 1978. The major changes in this revision are that of the material and hardness. The change in materials have been recommended by Research and Development Organization, Defence Metallurgical Research Laboratory, Hyderabad after the actual investigation.